

Title: Charge generation in organic solar cell blends

Abstract:

Polymer:fullerene blends have attracted attention as efficient organic photovoltaic (OPV) materials promising over 10% power conversion efficiency. In this talk, I present results obtained with a variety of ultrafast spectroscopic techniques (transient absorption, terahertz and electro-modulated differential absorption spectroscopy) that have allowed to correlate the mechanism of charge generation in donor:acceptor blends to the phase morphology, i.e. to the arrangement of the donor and acceptor into phase-pure (neat) and intermixed domains. In particular, I describe how varying the miscibility between the components (by changing the fullerene acceptor, or using ternary blends containing two different fullerenes), and replacing the polymer with the corresponding dimer, affect the phase morphology and charge generation.

Bio:

Natalie Banerji was born and raised in Geneva (Switzerland), although she is originally Austrian. She studied Chemistry at the University of Geneva and obtained her Ph.D. in Physical Chemistry in 2009, under the supervision of Prof. Eric Vauthey. She then moved to the University of California in Santa Barbara (USA), to work on organic solar cells during a post-doctoral stay with Prof. Alan J. Heeger (2009-2011). In 2011, she was given the opportunity to start her independent research career in Switzerland at the Ecole Polytechnique Fédérale de Lausanne (EPFL) with an Ambizione Fellowship by the Swiss National Science Foundation (SNSF). She obtained an SNSF-Professorship at the University of Fribourg (Switzerland) in 2014, and was subsequently nominated tenured Associate Professor in 2015. In 2016, she was awarded an ERC Starting Grant.